

AMENDMENTS TO THE CLAIMS

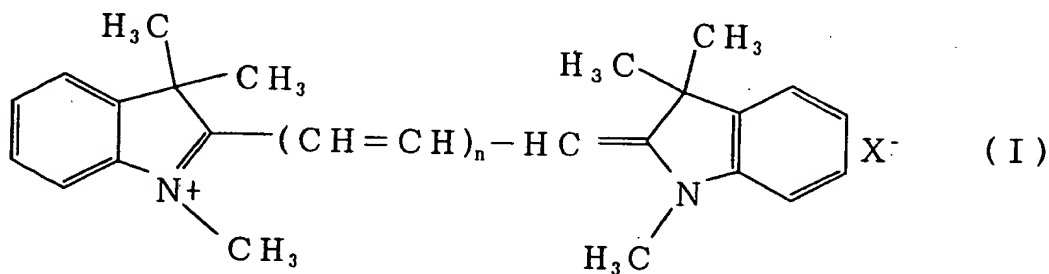
The following listing of claims replaces all prior listings, and all prior versions, of claims in the above-identified application:

LISTING OF THE CLAIMS:

1. (Withdrawn) A copper electroplating bath comprising a solution containing copper ions and at least one of electrolytes with an addition of at least one of cyanine dyes.

2. (Withdrawn) A copper electroplating bath comprising a solution containing copper ions and at least one of electrolytes with an addition of at least one of indolium compounds.

3. (Currently Amended) A copper electroplating bath comprising a solution containing copper ions, ~~and at least one of electrolytes, with an addition of~~ and at least one of the compounds represented by the following general formula



where X^- is an anion, and n is 0, 1, 2, or 3, and wherein one or more of polyethers, organic sulfur compounds and halide ions is further added to said copper

electroplating bath.

4. (Withdrawn) The copper electroplating bath according to Claim 1, wherein one or more of polyethers, organic sulfur compounds and halide ions is further added to said copper electroplating bath.

5. (Withdrawn) The copper electroplating bath according to Claim 2, wherein one or more of polyethers, organic sulfur compounds and halide ions is further added to said copper electroplating bath.

Claim 6 (Cancelled)

7. (Withdrawn) The copper electroplating bath according to Claim 1, wherein at least one or more of said cyanine dyes is added at a concentration of 1 to 15 mg/L.

8. (Withdrawn) The copper electroplating bath according to Claim 2, wherein at least one or more of said indolium compounds is added at a concentration of 1 to 15 mg/L.

9. (Currently Amended) The copper electroplating bath according to Claim 3, wherein said at least one ~~or more~~ of the compounds of the general formula (I) is added at a concentration of 1 to 15 mg/L.

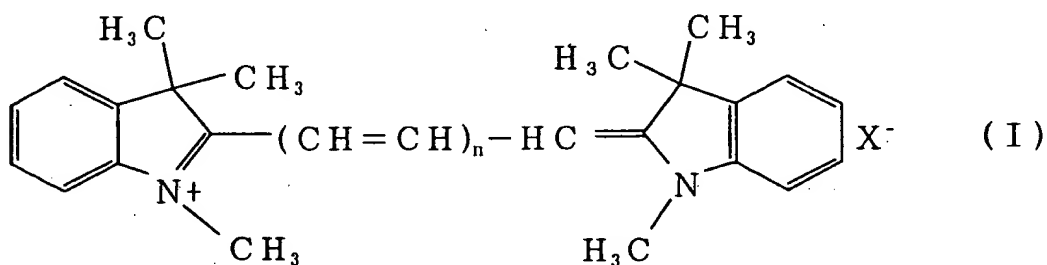
10. (Withdrawn) A process for producing a semiconductor integrated circuit device comprising providing an insulating layer having features on the top of the major surface of a semiconductor wafer which has a plurality of circuit element areas formed, depositing a barrier metal layer and a seed metal layer on the bottoms and the side surfaces of said features and on the top surface of said insulating layer, and filling the inside of said features with copper by electroplating with the copper electroplating bath according to Claim 1.

11. (Withdrawn) A process for producing a semiconductor integrated circuit device comprising providing an insulating layer having features on the top of the major surface of a semiconductor wafer which has a plurality of circuit element areas formed, depositing a barrier metal layer and a seed metal layer on the bottoms and the side surfaces of said features and on the top surface of said insulating layer, and filling the inside of said features with copper by electroplating with the copper electroplating bath according to Claim 2.

12. (Original) A process for producing a semiconductor integrated circuit device comprising providing an insulating layer having features on the top of the major surface of a semiconductor wafer which has a plurality of circuit element areas formed, depositing a barrier metal layer and a seed metal layer on the bottoms and the side surfaces of said features and on the top surface of said insulating layer, and filling the inside of said features with copper by electroplating with the copper

electroplating bath according to Claim 3.

13. (Currently Amended) A copper electroplating bath comprising a solution containing copper ions, ~~and at least one of electrolytes, and additives selected from the group consisting of~~ (a) ~~with an addition of~~ at least one of cyanine dyes, (b) ~~with an addition of~~ at least one of indolium compounds, and (c) ~~with an addition of~~ at least one of the compounds represented by the following general formula (I):



where X^- is an anion, and n is 0, 1, 2 or 3, and wherein one or more of polyethers, organic sulfur compounds and halide ions is further added to said copper electroplating bath.

14. (New) A process for producing a semiconductor integrated circuit device comprising providing an insulating layer having features on the top of the major surface of a semiconductor wafer which has a plurality of circuit element areas formed, depositing a barrier metal layer and a seed metal layer on the bottoms and the side surfaces of said features and on the top surface of said insulating layer, and filling the inside of said features with copper by electroplating with the copper electroplating bath according to Claim 13.

15. (New) The copper electroplating bath according to Claim 13, wherein said additives suppress the electroplating reaction during use of the copper electroplating bath and are consumed as the electroplating reaction proceeds, and a diffusion rate thereof is lower than a rate of reaction thereof during the use of the copper electroplating bath.

16. (New) The copper electroplating bath according to Claim 3, wherein said at least one of the compounds represented by the general formula (I) suppresses the electroplating reaction during use of the copper electroplating bath and is consumed as the electroplating reaction proceeds, and a diffusion rate thereof is lower than a rate of reaction thereof during the use of the copper electroplating bath.

17. (New) The copper electroplating bath according to Claim 3, wherein at least one polyether is added to said copper electroplating bath.

18. (New) The copper electroplating bath according to Claim 17, wherein said at least one polyether is selected from the group consisting of polyethylene glycols, polypropylene glycols and polyoxypropylene glycols, having an average molecular weight of 1000 to 10,000.

19. (New) The copper electroplating bath according to Claim 3, wherein at least one organic sulfur compound is added to the copper electroplating bath.

20. The copper electroplating bath according to Claim 19, wherein said at least one organic sulfur compound is selected from the group consisting of 3-mercapto-1-propanesulfonic acid, 2-mercapto ethane sulfonic acid, bis (4-sulfobutyl) disulfide, bis (3-sulfopropyl) disulfide, bis (2-sulfoethyl) disulfide and bis (p-sulfophenyl) disulfide.

21. (New) A process for producing a semiconductor integrated circuit device comprising providing an insulating layer having features on the top of the major surface of a semiconductor wafer which has a plurality of circuit element areas formed, depositing a barrier metal layer and a seed metal layer on the bottoms and the side surfaces of said features and on the top surface of said insulating layer, and filling the inside of said features with copper by electroplating with the copper electroplating bath according to Claim 3, wherein said at least one of the compounds represented by the general formula (I) suppresses the electroplating reaction and is consumed as the electroplating reaction proceeds, and has a diffusion rate lower than a rate of reaction thereof during the process.

22. (New) A process for producing a semiconductor integrated circuit device comprising providing an insulating layer having features on the top of the major surface of a semiconductor wafer which has a plurality of circuit element areas formed, depositing a barrier metal layer and a seed metal layer on the bottoms and the side surfaces of said features and on the top surface of said insulating layer, and

filling the inside of said features with copper by electroplating with the copper electroplating bath according to Claim 13, wherein said additives suppress the electroplating reaction and are consumed as the electroplating reaction proceeds, and have a diffusion rate lower than a rate of reaction thereof during the process.

23. (New) The process according to Claim 12, wherein concentration of said at least one of the compounds represented by the general formula (I) in the electroplating bath, at said bottoms of said features, during the process, is less than that at a top of said features.

24. (New) The process according to Claim 14, wherein concentration of said additives in the electroplating bath, at said bottoms of said features, during the process, is less than that at a top of said features.